

### **REMARKS**

Claims 1-6 and 8-23 are pending in the application. Claims 2-6, 8-20 and 23 have been amended herein. Favorable reconsideration of the application, as amended, is respectfully requested.

Applicants have amended claims 2-6, 8-20 and 23 to address the informalities noted by the Examiner on page 2 of the Office Action, and simply to conform better to conventional U.S. claim format.

#### ***I. REJECTION OF CLAIMS 1-6, 8-12 AND 21-23 UNDER 35 USC §102(b)***

Claims 1-6, 8-12 and 21-23 stand rejected under 35 USC §102(b) based on *Keller et al.* Applicants respectfully traverse this rejection for at least the following reasons.

Claim 1 recites a method of growing a p-type nitride semiconductor material by molecular beam epitaxy (MBE), the method comprising supplying bis(cyclopentadienyl)magnesium (Cp<sub>2</sub>Mg) during the growth process. Applicants respectfully submit that *Keller et al.* does not teach or suggest growing a p-type nitride semiconductor material by molecular beam epitaxy (MBE) by supplying bis(cyclopentadienyl)magnesium (Cp<sub>2</sub>Mg) during the growth process.

Specifically, the Examiner refers to *Keller et al.* as teaching a method of growing a p-type nitride semiconductor material by MBE, citing Column 2, lines 49-52. The Examiner states that *Keller et al.* teaches that the method includes supplying Cp<sub>2</sub>Mg during the growth process, citing Column 3, lines 63-67.

Applicants respectfully submit that the Examiner appears to have misinterpreted the teachings of *Keller et al.* More specifically, applicants acknowledge that *Keller et al.* seemingly describes growing gallium nitride films using MBE. (See, e.g., Column 2,

lines 49-54). However, when *Keller et al.* goes on to describe the use of  $\text{Cp}_2\text{Mg}$  to dope the gallium nitride with magnesium, such discussion is in the context of an *MOCVD process* (i.e., not an MBE process as recited in claim 1).

For example, *Keller et al.* describes at Column 3, lines 2-10 the basic construction of the MOCVD apparatus. In describing the use of such apparatus, *Keller et al.* describes using  $\text{Cp}_2\text{Mg}$  to dope the gallium nitride as discussed in Column 3, lines 61-67.

Conversely, applicants can find no reference in *Keller et al.* to using  $\text{Cp}_2\text{Mg}$  other than in connection with the *MOCVD process*. *Keller et al.* has not been shown to teach or suggest that  $\text{Cp}_2\text{Mg}$  can be used as a p-type dopant in an *MBE process* as claimed. In other words, *Keller et al.* merely teaches what the applicants have acknowledged was already known, namely using  $\text{Cp}_2\text{Mg}$  in connection with *MOCVD*. (See, e.g., Specification, page 2, last paragraph).

Summarizing, applicants respectfully submit that *Keller et al.* does not teach or suggest using  $\text{Cp}_2\text{Mg}$  in connection with an MBE process as recited in claim 1. Accordingly, the rejection is improper and should be withdrawn.

Similar arguments apply with respect to claims 2-6, 8-12 and 21-23 which depend from claim 1.

## **II. REJECTIONS OF CLAIMS 13-20 UNDER 35 USC §103(a)**

Claims 13-18 stand rejected under 35 USC §103(a) based on *Keller et al.* in view of *Barnes et al.* Remaining claims 19 and 20 stand rejected under 35 USC §103(a) based on *Keller et al.* in view of *Hooper et al.* Applicants respectfully traverse each of these rejections for at least the following reasons.

Claims 13-20 each depend from claim 1 either directly or indirectly. Consequently, these claims may be distinguished over the teachings of *Keller et al.* for

at least the same reasons discussed above. Moreover, *Barnes et al.* and *Hooper et al.* do not make up for the deficiencies in *Keller et al.*

As a result, applicants respectfully request withdrawal of the rejections of claims 13-20.

### **III. CONCLUSION**

Accordingly, all claims 1-6 and 8-23 are believed to be allowable and the application is believed to be in condition for allowance. A prompt action to such end is earnestly solicited.

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should a petition for an extension of time be necessary for the timely reply to the outstanding Office Action (or if such a petition has been made and an additional extension is necessary), petition is hereby made and the Commissioner is authorized to charge any fees (including additional claim fees) to Deposit Account No. 18-0988.

Respectfully submitted,

RENNER, OTTO, BOISSELLE & SKLAR, LLP

/Mark D. Saralino/

Mark D. Saralino

Reg. No. 34,243

DATE: July 23, 2007

The Keith Building  
1621 Euclid Avenue  
Nineteenth Floor  
Cleveland, Ohio 44115  
(216) 621-1113